

Title (en)
Method of bonding plastic hydrophobic film to metallic sheet and a bipolar rechargeable battery

Title (de)
Verfahren zum Verbinden einer hydrophoben Kunststoffolie mit einer Metallschicht

Title (fr)
Procédé pour relier un fil en matière plastique hydrophobe avec une feuille métallique

Publication
EP 0863560 A2 19980909 (EN)

Application
EP 98301543 A 19980303

Priority
US 80800997 A 19970303

Abstract (en)
Plastic hydrophobic material (144, 146) is bonded to a metallic sheet member (142) such that the resulting sandwich structure is impervious to electrochemical delamination. First and second films (144, 146) of the plastic hydrophobic material are applied to opposed surfaces (148, 150) of the metallic sheet member (142) and extend beyond a peripheral edge (154) of the metallic sheet member (142) to form contiguous border portions (156, 158). A plurality of perforations (152) are formed through the metallic sheet member (142) at locations spaced from its peripheral edge (154). A resulting sandwich structure of the metallic sheet member (142) and the first and second films (144, 146) are compressed and simultaneously the temperature is raised to the sintering temperature of the hydrophobic film material. The first and second films (144, 146) are caused to melt sufficiently at their interfaces to cause an intermixing of the juxtaposed material thereof throughout the region of the border portions (156, 158) and throughout the regions of the perforations (152). When the resulting sandwich structure is cooled to room temperature and the films return to the hardened state, they are firmly bonded together in the region of the border to form an integral fringe (168) which seals the peripheral edge of the metallic sheet member from ambient conditions and throughout the regions of the perforations (152) such that the first and second films (144, 146), respectively, are drawn firmly into engagement with the metallic sheet member (142) by reason of the differential coefficient of thermal expansion between the metallic sheet member and the hydrophobic film material. The construction has application to the construction of bipolar batteries.
<IMAGE> <IMAGE>

IPC 1-7
H01M 4/02; H01M 10/04; H01M 10/34; H01M 12/08

IPC 8 full level
B32B 15/08 (2006.01); **B29C 37/00** (2006.01); **B29C 63/00** (2006.01); **B29C 65/00** (2006.01); **H01M 4/02** (2006.01); **H01M 4/64** (2006.01); **H01M 10/04** (2006.01); **H01M 10/28** (2006.01); **H01M 10/30** (2006.01); **H01M 10/34** (2006.01); **H01M 10/40** (2006.01); **H01M 12/08** (2006.01); **H01M 8/02** (2006.01)

CPC (source: EP US)
B29C 37/0085 (2013.01 - EP US); **B29C 63/0026** (2013.01 - EP US); **B29C 65/02** (2013.01 - EP US); **B29C 66/1122** (2013.01 - EP US); **B29C 66/304** (2013.01 - EP US); **B29C 66/433** (2013.01 - EP US); **B29C 66/5326** (2013.01 - EP US); **B29C 66/61** (2013.01 - EP US); **B29C 66/71** (2013.01 - EP US); **B29C 66/73112** (2013.01 - EP US); **B29C 66/742** (2013.01 - EP US); **H01M 4/02** (2013.01 - EP US); **H01M 10/0418** (2013.01 - EP US); **H01M 10/345** (2013.01 - EP US); **B29K 2027/18** (2013.01 - EP US); **B29L 2031/3468** (2013.01 - EP US); **B29L 2031/737** (2013.01 - EP US); **H01M 8/0271** (2013.01 - EP US); **H01M 12/08** (2013.01 - EP US); **Y02E 60/10** (2013.01 - EP US); **Y02E 60/50** (2013.01 - EP); **Y02P 70/50** (2015.11 - EP)

Designated contracting state (EPC)
DE FR GB IT

DOCDB simple family (publication)
EP 0863560 A2 19980909; EP 0863560 A3 20000202; JP H11165373 A 19990622; US 5882817 A 19990316

DOCDB simple family (application)
EP 98301543 A 19980303; JP 5035398 A 19980303; US 80800997 A 19970303